Alternative Individual Onsite Systems

or

What are those things sticking up in my back yard

FSN - 4 **Loudoun County Health Department** **February 2006**

Two Aerobic Treatment Units (ATU's) awaiting installation

Alternative Systems

Service Desk
703-777- 0234

Environmental Health Director
703-771-5135

Wastewater Engineering and Policy Development
703-737-8931

Inspection of Systems
703-771-5802

Planning and Construction
703-737-8739

Operation and Maintenance
703-737-8931

Alternative Treatment and Dispersal Systems have given many citizens concern since they started arriving in Loudoun County. The purpose of this fact sheet is to help you understand alternative systems. The picture to the right shows effluent from left to right, of a septic tank, a secondary ATU, and an advanced treatment unit. As you can see visually, the quality of the effluent improves the greater the treatment. Alternative Treatment is locally defined as anything different than a conventional septic tank and trenches supplied by gravity from a distribution box. There are 5 systems commonly thought of as Alternative: Aerobic Treatment Units mixed media, Aerobic Treatment units fixed media, low pressure distribution systems, drip distribution systems, and mounds. However holding tanks (Pump and Haul), spray distribution as well as other specially designed systems meet the alternative definition.

Effluent Quality

First why are alternative systems needed? They are basically needed to allow homes to be built on certain properties. The most common problem is that the soil is unsuitable for a conventional septic system. A conventional septic system needs certain soil characteristics in order for the wastewater to be further treated. General soil characteristics that make a site unsuitable for a conventional system are: shallow water tables; shallow depth to rock; soils with low permeability; or high clay content. When these conditions are encountered, it often will require an alternative *dispersal* system such as

Aerobic Fixed Media

drip irrigation which can be placed close to the top of the soil. Another reason is simply where the home is in reference to the dispersal field (soil may be good in another part of the site but it is not where the owner wants a dispersal system or it is the place he wants the house). An alternative system can allow greater flexibility on utilization of a site which often cannot be developed with septic systems.

So if alternative systems have these great attributes, why the concern? There are several reasons to be concerned. First, they are not passive, but are reliant on power, electronics, and mechanical equipment. They are every bit as sophisticated and can cost as much as an upscale automobile. Second, they are aerobic biological treatment units which are more sensitive to changes such as the amount of water that is sent to them and the amount of biological material received. They can also be affected by chemicals – paints, cleaners, pharmaceuticals, etc. Third, they can be affected by weather conditions such as cold weather, extremely wet weather, surface runoff, and lightning to name a few. Forth, the homeowner isn't qualified (except in extremely rare cases) to provide the necessary service and maintenance that these systems require.

Many people consider these systems just another appliance that is supposed to work for a long time with no care. Also, because these systems are located outside the home and for the most part underground, they are out of sight and out of mind. It is only when failure occurs and sewage surfaces, backs up into the home, or that the odor is offensive that anyone raises concern. Others, gamble with the odds – they don't expect to live in this home or this area for more than a few years and believe they can get by without a problem. Statistics however are against them. Problems often occur in the early stages of of a system's life or upon change in occupancy – from one family to another.

The Environmental Protection Agency in a response to Congress indicated that the greatest reason for onsite system failures is the lack of maintenance. The NSF International (previously the National Sanitation Foundation www.nsf.org) tests most of these aerobic systems to meet ASTM Standard 40. NSF requires a two year warranty to accompany the sale of these systems, which includes inspection and servicing every six months. Orenco Systems Inc. request that their systems have service and inspection for the life of the system.

Loudoun County is embarking on a comprehensive management program for onsite wastewater systems. The Loudoun County Onsite Management System (LCOMS) identifies when an onsite system is serviced. The Service provider sends the service information to a central database identifying what was done and the time it was accomplished. The LCOMS is programmed to flag alternative systems based upon the manufacturers recommended service intervals. From this we can identify those systems that are being cared for and those that are not. Alternative Systems require service, inspection, monitoring and maintenance. Everyone should have a service agreement with a provider to care for these systems. While we can replace an automobile, we may not be able to replace an onsite wastewater treatment system due to limited availability of suitable soils.

For additional information we suggest you go to one of the following web sites
Virginia Onsite Wastewater Recycling Association – http://vowra.nowra.org
National Onsite Wastewater Recycling Association -- http://nowra.org
National Environmental Services Center -- http://www.nesc.wvu.edu/
US EPA Wastewater Management Septic Systems -- http://cfpub.epa.gov/owm/septic/home.cfm
National Environmental Health Association -- http://www.neha.org
Consortium of Institutes for Decentralized Wastewater Treatment -- http://www.onsiteconsortium.org/

Failure Due to Frozen Pipes